



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Paul A. Crawford

Serial No.: 10/008,106

Filed: November 9, 2001

For: PUP JOINT WITH INTEGRAL WING
NUT RETENTION SHOULDER

Group Art Unit: 3679

Examiner: Eric K. Nicholson

Atty. Dkt. No.: FMCC:014USR1

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CERTIFICATE OF MAILING
37 C.F.R. § 1.8

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5/14/04
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Mark T. Garrett
Mark T. Garrett

SECOND DECLARATION OF PAUL CRAWFORD UNDER 37 C.F.R. § 1.132

I, Paul A. Crawford, declare as follows:

1. I am the inventor of the above-referenced patent application.
2. I am an employee of FMC Technologies, Inc., and have been for 19 years.
3. I have 19 years of experience in the oil well service and drilling industries.
4. I have read the Office Action mailed on February 17, 2004. I understand that the Examiner has taken the position that the pending claims are unpatentable over a combination of prior art FIGS. 1 and 2 from this application and U.S. Patent 5,047,021 to Utterberg.
5. Utterberg deals with small, plastic medical fittings, not pup joints or anything used in the oilfield industry.
6. The problem I faced in creating the present invention was how to keep the retainer segments and wing nut at one end of a pup joint when the pup joint is turned vertically.

Otherwise, the wing nut could slide down, thus getting out of position and/or running into and hurting the operator's hand(s).

7. Pup joints are designed to carry fluid at high pressures – on the order of 1,000 to 20,000 psi. They are generally made of rigid, high strength materials such as carbon steel or high-strength, low alloy steel. They can range in size from 1 foot long (or shorter) and around 10 pounds to 40 feet long (or longer) and many hundreds of pounds. Bore sizes for some pup joints range from 1 to 6 inches in diameter. Most pup joints are designed for extended use. The claimed pup joints include one or more retainer segments and a wing nut that can be made-up and broken down several times during the pup joint's useful life. Once the retainer segments are removed, the wing nut can be removed as well. The retainer segments and wing nut can then be inspected and/or replaced.

8. Utterberg is concerned with male luer lock fittings having a nozzle and a locking ring. Col. 1, lines 8-12. Utterberg was dealing with the problem of needing a male luer lock that had a nozzle long enough to pierce a fluid bag port when the locking ring was in a retracted position. Utterberg was concurrently dealing with the problem of generating leverage when untwisting the locking ring to separate the nozzle from the female luer fitting. Col. 2, line 27 – col. 4, line 13. According to Utterberg, it had been difficult to achieve a suitable solution to both of these problems with a single male luer lock. Col. 4, lines 22-35.

9. The nozzles of the male luer locks depicted in FIGS. 4-8 of Utterberg have an annular locking ridge 308 that protrudes radially outwardly from nozzle 300. Utterberg states that ridge 308 “serves to restrain longitudinal forward motion of ring 320 relative to the nozzle” Col. 5, lines 36-44. Utterberg explains that ring 320 was installed around nozzle 300 by moving the ring from the tip end of the nozzle toward the other end of the nozzle (i.e., from nozzle tip 310 toward ridge 312) until locking ridge 333 of the ring hit ridge 308 of the nozzle. Col. 6, lines 4-8. At that point, the operator could keep pushing the ring against ridge 308 until the ring expanded, or “gave”, and ridge 333 cleared ridge 308. Col. 6, lines 4-9. The ring was flexible because it and the nozzle were made of plastic. Col. 7, lines 14-16. The passageway through

nozzle 300 is only a few millimeters in diameter. Col. 7, lines 16-22. The patent indicates that devices of this type are disposable. Col. 1, lines 15-18.

10. In my opinion, one of ordinary skill in my art who was faced with my problem and aware of the facts explained above about pup joints would not have considered Utterberg's male luer locks to be pertinent.

11. The materials from which the two different structures are made, and the manner in which the different structures are used, are very different. Pup joints are made from high-strength, rigid materials. They are intended to be broken down and made-up several times during their useful life. As a result, the claimed pup joints use retainer segments. In contrast, Utterberg's male luer locks are made from flexible plastic, and they are likely disposable. No retainer segments are used or needed. Ring 320 of Utterberg's male luer locks can be press fit over ridge 308. That is not possible with the claimed pup joints. There is no need to try and pull ring 320 off of nozzle 300 after the luer lock has been used because the luer lock can be discarded. It is not clear that it would be feasible to pull the ring off, even if that were desired.

12. Pup joints are much larger than Utterberg's male luer locks. While a small pup joint might only be a foot long, it can still weigh about 10 pounds. Larger pup joints can be 40 feet long and weigh hundreds of pounds. In contrast, Utterberg's male luer locks are only a few centimeters long (see FIGS. 6 and 7; col. 6, lines 21-31), and have very little mass.

13. Pup joints also handle fluids traveling at much greater volumes and pressures than fluids that travel through Utterberg's male luer locks.

14. It would not be practical to eliminate the one or more retainer segments of my pup joints, and size the wing nut such that its movement could be restrained by the retention shoulder. If that were done, the wing nut would have to be press fit onto the male sub by moving the wing nut past the claimed forward shoulder (in the direction of the female sub at the opposite end). The force that would be required to achieve such a fit would be very high, and would most likely permanently deform the material of the wing nut, the forward shoulder, or both. Any connection involving the compromised material of the deformed pup joint could not be trusted.

15. I declare that all statements made of my own knowledge are true; that all statements made on information and belief are believed to be true, and further that my statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing on the application.

5/13/04
Date

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